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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/567,945

02/10/2006

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EXAMINER

ARNBERG, MEGAN C

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

03/21/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/567,945	<b>Applicant(s)</b> DIAKOUMAKOS ET AL.	
	<b>Examiner</b> MEGAN ARNBERG	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 02 March 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 16-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 February 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/10/2006</u> .   | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 16-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maekawa et al. (US 2002/0040098) in view of Eichorst et al. (US 2001/0019813).

Regarding claims 16, 21, 22, 23, and 24: Maekawa et al. teaches a composition comprising a cyclocarbonate group (para. 49), particles/platelets of clay (para. 79) and a hardener/crosslinking agent (para. 55).

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Maekawa et al. does not teach the platelets having a thickness of less than 25 angstroms or an aspect ratio of higher than 10. However, Eichorst et al. teaches a polyurethane composition (abstract) comprising clay platelets of montmorillonite (para. 43) with a thickness of about 0.001 micron and a diameter of 0.050 microns (para. 43). This is calculated to 10 angstroms thick and an aspect ratio of 50. Maekawa et al. and Eichorst et al. are combinable because they are both concerned with the same field of endeavor, namely urethane based compositions filled with clay particles. At the time of the invention a person having ordinary skill in the art would have found it obvious to combine the specific clay particles of Eichorst et al. with the composition of Maekawa et al. and would have been motivated to do so for such desirable properties as increased electrical conductivity and optical transparency as stated by Eichorst et al. (para. 25).

Regarding claim 17: Maekawa et al. teaches an epoxy group (para. 49).

Regarding claim 18: Maekawa et al. teaches the reaction of cyclocarbonate and carbonyl groups (para. 49), which would make R<sub>1</sub> and/or R<sub>2</sub> an unsaturated oxygen containing group.

Regarding claims 19 and 20: Maekawa et al. does not teach the amount of the clay particles. However, Eichorst et al. teaches from 20-80% particles in the polymer binder (para. 29), which overlaps the claimed range. At the time of the invention a person having ordinary skill in the art would have found it obvious to combine the amount of particles of Eichorst et al. with the composition of Maekawa et al. and would have been motivated to do so for such desirable properties as sufficient electrical conductivity properties while still maintaining effective adhesive properties.

Regarding claim 25: Maekawa et al. comprises fiber reinforcement (para. 86).

Regarding claim 26: Maekawa et al. teaches a pigment (para. 76).

Regarding claim 27: Maekawa et al. teaches a stabilizer (para. 76).

Regarding claim 28: Maekawa et al. teaches solvent (para. 76).

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maekawa et al. (US 2002/0040098) in view of Eichorst et al. (US 2001/0019813) as applied to claim 16 above and in further view of Wulf von Bonin (U.S. Pat. 3,827,869).

Regarding claim 29: Maekawa et al. teaches the basic claimed composition as set forth above.

Not disclosed is a diluent. However, Wulf von Bonin teaches a composition comprising a polyurethane, clay particles (col. 2 line 45), and cyclic carbonate (col. 5 line 54) with diluents. Maekawa et al. and Wulf von Bonin are combinable because they are both concerned with the same field of endeavor, namely compositions comprising cyclic carbonates and clay particles. At the time of the invention a person having ordinary skill in the art would have found it obvious to combine the diluent of Wulf von Bonin with the composition of Maekawa et al. and would have been motivated to do so for such desirable properties as an easily workable and apply-able uncured composition that can cure without release of volatile solvents.

Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maekawa et al. (US 2002/0040098) in view of Eichorst et al. (US 2001/0019813).

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Regarding claim 30: Maekawa et al. teaches mixing (para. 80) a composition and curing (para. 90), the composition comprising a cyclocarbonate group (para. 49), particles/platelets of clay (para. 79) and a hardener/crosslinking agent (para. 55).

Maekawa et al. does not teach the platelets having a thickness of less than 25 angstroms or an aspect ratio of higher than 10. However, Eichorst et al. teaches a polyurethane composition (abstract) comprising clay platelets of montmorillonite (para. 43) with a thickness of about 0.001 micron and a diameter of 0.050 microns (para. 43). This is calculated to 10 angstroms thick and an aspect ratio of 50. Maekawa et al. and Eichorst et al. are combinable because they are both concerned with the same field of endeavor, namely urethane based compositions filled with clay particles. At the time of the invention a person having ordinary skill in the art would have found it obvious to combine the specific clay particles of Eichorst et al. with the composition of Maekawa et al. and would have been motivated to do so for such desirable properties as increased electrical conductivity and optical transparency as stated by Eichorst et al. (para. 25).

### ***Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MEGAN ARNBERG whose telephone number is (571)270-3292. The examiner can normally be reached on Monday - Friday 7:30-5:00 EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571) 272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo/  
Supervisory Patent Examiner, Art Unit 1796  
17-Mar-08

/M. A./  
Examiner, Art Unit 1796